

MALUS LANCIFOLIA REHDER

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¹Malus lancifolia Rehder, the Lanceleaf Crab Apple, was originally described in Volume II of C. S. Sargent's "Trees and Shrubs" (1907-13) and was regarded as a distinct species until M. L. Fernald got the idea that it was a variety of coronaria.

Fernald's description of coronaria var. lancifolia in Rhodora 49:232 was sketchy. He did not name a single intergrading character.

Fernald's "description" indicated that he got his information from C. C. Deam. Deam's description of coronaria in the 5th edition of his "Trees of Indiana" is also sketchy. Instead of describing the species in the descriptive text, he writes about Crab Apple thickets, wildlife, poisonous spray and general taxonomic problems. He does not mention lancifolia. The photoengraving on page 210, represented to be coronaria, is actually lancifolia. It is evident that Deam regarded coronaria and lancifolia as conspecific.

The photoengravings in Hough's "Handbook of the Trees of the Northern States" and Harlow's "Trees" and the drawings in Preston's "North American Trees" (the most typical of all) and B&B all show a lobed or lobulate type of leaf for coronaria.

If the two extreme types of leaves--the deeply lobed type shown in Hough's book and the unlobed type shown in Deam's book--are to be regarded as authentic portrayals of the leaf of coronaria, then one would have to conclude that the shape of the leaf means nothing. However, the shape of the leaves is generally shown as a character in keys of Malus.

Lancifolia is not found in Kansas. In its typical form lancifolia is confined to a small area in the western part of Jackson County, Missouri, extending from Courtney thru Independence and over the uplands on both sides of the Blue River to Swope Park and beyond--an area that may be roughly described as the eastern outskirts of Kansas City. I have not explored the Courtney-Independence area but I have studied numerous scattered trees from the Mount Washington Cemetery Woods to Eastwood Hills east of the Blue River and from Blue Valley Park to Swope Park and beyond west of the river. The type material of lancifolia, sent by B. F. Bush to the Arnold Arboretum, was collected in rich woods near Courtney, Bush's home, in 1906. Mention is also made in the original description of a collection taken near Independence.

Coronaria is not found in Jackson County, so that there is no such thing as intergrading. And it is a principle of taxonomy that the characters of the plants in the colony that the type specimen came from should form the description of the species.

Elsewhere in Missouri lancifolia has been found only at Williamsville in Wayne County. Arie F. den Boer has written me that he has never found a single specimen of lancifolia between the Kansas City area and eastern Ohio. It is said that trees referable to lancifolia grow in great numbers in Pennsylvania and Maryland. In the herbarium of the Chicago Natural History Museum there are specimens collected in Fauquier and Shenandoah counties in Virginia.

Lancifolia is one of the best of the Crab Apples because it is very floriferous and has a stout, straight trunk and a well balanced crown. It is much better shaped than coronaria. The A.F.A. champion lancifolia, in Blue Valley Park in Kansas City, has a circumference of 1 foot 10 inches, a height of 25 feet and a spread of 23 feet and produces more than a thousand crab apples a year.

The characters of lancifolia as it grows on the eastern outskirts of Kansas City are so different from the characters of coronaria in the Indiana Dunes State Park, where I have studied it, that I cannot conceive of the two as belonging to the same species. I suspect that the reason why some botanists have concluded, too hastily, that the two are conspecific is that they noted the resemblance between the lobulate type of leaf of lancifolia, which is atypical, and the lobulate type of leaf of coronaria, appearing on old trees, without observing other characters, such as the venation and the ratio of the width to the length.

The Comparative Key at the end of this article shows those characters of the two species that are essentially different. The figure in the "Weight" column reflects my opinion of the relative importance of the character. In ascertaining the identity of a specimen, the figure in this column should be put down in the appropriate specific column whose description matches the specimen's characters: the greater total in either column determines the identity of the specimen.

I have given the greatest weight, 7, to the color of the anthers. The color of the anthers is an important diagnostic character in Crataegus but too little attention has been given to it in Malus. In early May of 1962 I examined the anthers of newly opened flowers of three trees of lancifolia in Blue

Valley Park and one tree just west of Swope Park and found that their color was deep pink. In May of 1960 and 1961 I examined the anthers of fresh flowers of trees of coronaria in the Indiana Dunes State Park and found that their color was orange yellow. These characters are shown in the Key. This is slightly tentative, however. Notes made by Arie F. den Boer on two Eastern trees of lancifolia on file in the Morton Arboretum show the color of the anthers as apricot to deep salmon or buff apricot. If it should develop from studying the anthers of newly opened flowers of numerous wildings correctly identified by other characters that there are several races of either species with differently colored anthers, the Key would have to be corrected accordingly.

I have given the second greatest weight, 6, to the venation of the leaves. This very distinctive character has been overlooked in the past and has apparently been the cause of much of the confusion between the two species.

The lobation and the shape of the base of the leaves are very important but their ecological variations need to be understood. In coronaria in the Indiana Dunes the lowest lobe is conspicuously large except on the largest trees, whose leaves are ovate, rounded at the base and merely lobulate. In lancifolia in the Kansas City area the leaves are unlobed except for a tiny jog in the margin of the leaf at the distal end of the rounded base. However, specimens of lancifolia examined in the herbarium and a plantation of the Morton Arboretum show lobulate leaves.

This Key can also be used by persons that prefer to recognize lancifolia as a variety rather than a species.

¹Some botanists use the generic name Malus and others use Pyrus for the Apples and Crab Apples. In most other professions there is a central committee that defines terms, outlines proper procedures and settles disputes and I think it is deplorable that the professional botanical taxonomists do not see the need for uniform understanding.

COMPARATIVE KEY TO MALUS LANCIFOLIA AND MALUS
CORONARIA SHOWING THEIR DIFFERENCES

WEIGHT	CHARACTER	MALUS LANCIFOLIA	MALUS CORONARIA
4	Leaf Blades:	Rounded, often semicircular.	Often broadly rec- tilinear-cuneate or nearly so above the narrowly rounded or subcordate base.
	Base		
1	Loba- tion	Typically unlobed except for 1 pair of lobes 1-2(-4) mm. wide (mea- sured horizontal- ly but not always present) at the distal end of the rounded base; or sometimes scarce- ly lobulate.	4-7 pairs of rec- tangular, pointed, toothed lobes or lobules, the lowest pair usually the largest and appear- ing at three- eighths to one-half the distance from the base to the apex on lobed leaves.
5	Dimen- sions	Averaging 52% to 56% as wide as long.	Two-thirds to four- fifths as wide as long.
1	Color above	Moderate yellow green.	Dark greenish yel- low or dark yellow.
6	Primary veins	Sometimes arcu- ate, leaving the midrib at irregu- lar intervals and nearly buried in the parenchyma, usually forking and not reaching the margin of the leaf.	Straight, leaving the midrib at regu- lar intervals and extending to the points of the lobes.
2	Flowers	31-45 mm. wide.	30-32 mm. wide.
7	Anthers	Deep pink.	Orange yellow.
3	Pubes- cence of lower side of sepals	Glabrous.	Pubescent or hoary- tomentose.
1	Pome	21-28 mm. high, 25-36 mm. wide.	20-23 mm. high, 26-31 mm. wide.



These leaves of *MALUS CORONARIA*, which are approximately 17% of natural size, were taken from different trees in the Indiana Dunes State Park. Distortion due to the low angle at which the camera was pointed at them causes these leaves to appear to be narrower than they really are. The leaf on the right was taken from the largest tree in the park, 1'11" in circumference, and shows the lobulate type of leaf found on old trees.



These leaves and flowers of *MALUS LANCI-FOLIA*, which are approximately three-eighths of natural size, were taken from the A.F.A. champion in Blue Valley Park, Kansas City, Mo.